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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/588,788	06/06/2000	Heng-Ming Hsu	67,200-262	9280

7590 03/02/2006

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EXAMINER
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TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 03/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/588,788

Applicant(s)

HSU ET AL.

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,4-8 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-8 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The applicant(s) amendment filed on November 11, 2005 has been fully considered and made of record.

In light of the decision and remarks by the Board of Patent Appeals and Interferences (dated September 30, 2005), the amendment to the claims has now rendered the claims as being clear and definite and to fully comply with 35 U.S.C. 112, second paragraph.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 102***

3. Claims 1, 4, 5, 6, 8 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Romankiw et al and Church et al 4,219,854.

Romankiw discloses a method of fabricating an inductor structure comprising: providing a substrate 20 (in Fig. 1A); forming over the substrate a single spiral planar conductor 10 (in Fig. 1B) to form a single spiral planar inductor, wherein a successive series of loops within the planar spiral conductor layer is formed with a progressive and discontinuous variation in a series of linewidths of the successive series of loops (10a-10h).

It noted that the “linewidths” of the successive series of loops of Romankiw are depicted (in Fig. 1A) such that one discrete linewidth is shown closest to the transducing gap G with another increasing discrete linewidth shown in the serious of loops furthest away from the

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transducing gap G. This results in a series of discrete linewidths for the successive series of loops.

The examiner additionally cites the reference to Church et al as extrinsic evidence to merely show that a single spiral planar conductor 20 forms a successive series of loops with a progressive and discontinuous variation in a series of linewidths of the successive series of loops where one discrete linewidth is shown closest to the transducing gap and another increasing discrete linewidth shown in the series of loops furthest away from the transducing gap (see col. 2, lines 17-22 and lines 43-46).

Regarding Claims 4 and 5, Romankiw further teaches that the loops are formed in a shape of a rectangle (as shown in Fig. 1B) with the conductor material being a non-magnetic metal (see col. 2, lines 43-46).

Regarding Claims 6, 8, and 16, the loops formed by the conductor are shown (in Fig. 1B) to have a “comparatively narrow linewidth” at a portion of the spiral closer to the medium M, or transducing gap G, and a “comparatively wide linewidth” with a greater thickness than the “comparatively narrow linewidth” at the portion of the spiral furthest away from the medium M, or transducing gap G. One loop 10 is comprised of at least 4 spirals where the variation is progressively increasing and decreasing with at least one of the spirals.

#### ***Claim Rejections - 35 USC § 103***

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Romankiw et al and Church et al, in view of Ohmura et al.

Romankiw discloses the claimed fabrication method as previously discussed. Romankiw does not specifically mention the specific ranges defined in Claim 7 for the comparatively narrow linewidth and comparatively wide linewidth.

Ohmura teaches different linewidths for spiral conductors with one range of dimensions that includes 0.1-10  $\mu\text{m}$ , which is inclusive of the claimed range of 7-10 microns for the comparatively narrow linewidth, and another range of 34.9-190  $\mu\text{m}$  for a comparatively wide linewidth. The benefits of the variation of linewidths allows formation of the spiral conductors to occur free from short circuiting with high reliability (see col. 1, lines 62-66).

It would have been obvious to one of ordinary skill in the art at the time the invention was made formed the spiral conductors of Romankiw with the linewidths taught by Ohmura, to positively form spiral conductors free from short circuiting and with high reliability.

With respect to the comparatively wide linewidth having a width in the range of 17-21 microns, this claimed range is considered to be an effective variable within the level of ordinary skill in the art of forming spiral conductors and it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a range for the comparatively wide linewidth of between about 17-21 microns, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

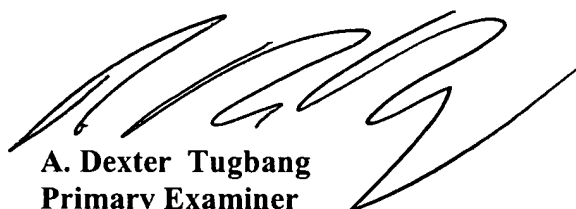
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**A. Dexter Tugbang**  
**Primary Examiner**  
**Art Unit 3729**

January 19, 2006